MATERIAL SAFETY DATA SHEET

SRM Supplier: National Institute of Standards and Technology
Standard Reference Materials Program
100 Bureau Drive, Stop 2321
Gaithersburg, Maryland 20899

SRM Number: 2710
MSDS Number: 2710
SRM Name: Montana Soil Highly Elevated Trace Element Concentrations
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SECTION I. MATERIAL IDENTIFICATION

Material Name: Montana Soil, Highly Elevated Trace Element Concentrations

Description/Other Designations: Lead (plumbum) in Soil

Name	Chemical Formula	CAS Registry Number
Lead	Pb	7439-92-1

DOT Classification: Not regulated by DOT

Manufacturer/Supplier: Available from a number of suppliers

SECTION II. HAZARDOUS INGREDIENTS

Hazardous Component	Nominal Concentration (%)	Exposure Limits and Toxicity Data
Lead	~ 0.55	ACGIH TLV-TWA: 0.5 mg/m^3
		OSHA TLV-TWA: 50 $\mu g/m^3$
		Woman, Oral: TD_{Lo}: 450 mg/kg /6 years
		Human, Inhalation: TC_{Lo}: 10 $\mu g/m^3$
Trace Elements		Not applicable*

* The trace elements in this material have concentrations levels equivalent to those found in natural soil. For actual concentrations of the elements, see the corresponding Certificate of Analysis.

SECTION III. PHYSICAL/CHEMICAL CHARACTERISTICS

Lead	
Appearance and Odor: white to gray solid	**Vapor Pressure (@ 970 °C):** 1.3 mmHg
Relative Atomic Mass: 207.20	**Vapor Density:** N/A
Specific Gravity (Water = l): 11.3	**Volatility (%):** N/A
Boiling Point: 1 740 °C	**Water Solubility:** Insoluble
Melting Point: 328 °C	**Solvent Solubility:** Soluble in nitric acid and hot sulfuric acid

NOTE: The physical and chemical data on this lead/soil mixture do not exist. The data provided above is for pure lead.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable **Method Used:** Not Applicable **Autoignition Temperature:** Not Applicable

Flammability Limits in Air (Volume %): **UPPER:** Not Applicable
LOWER: Not Applicable

Unusual Fire and Explosion Hazards: This material is a negligible fire hazard.

Extinguishing Media: Use carbon dioxide, dry chemical, foam, or water.

Special Fire Procedures: Fire fighters should use self-contained breathing apparatus (SBCA) and proper eye and skin protection.

SECTION V. REACTIVITY DATA

Stability: **__X__ Stable** **_____ Unstable**

Conditions to Avoid: Avoid heat sources, sparks, and open flames. Avoid generating dust. Keep out of water supplies and sewers.

Incompatibility (Materials to Avoid): Keep this material away from oxidizing materials, halogens, combustible materials, peroxides, metals, metal carbide, and strong acids.

Hazardous Decomposition or By-products: Thermal decomposition of this material releases a variety of products, including oxides of lead and carbon.

Hazardous Polymerization: **_____ Will Occur** **_X_ Will Not Occur**

SECTION VI. HEALTH HAZARD DATA

Route of Entry: __X__ Inhalation ____ Skin __X__ Ingestion

Health Hazards (Acute and Chronic): This material may be harmful by inhalation or ingestion and is irritating to the mucous membranes and upper respiratory tract. Lead may have reproductive effects or cause birth defects. It is also suspected as a cancer hazard (in animals). Absorption of large amounts of lead may cause a metallic taste, thirst, a burning sensation in the mouth and throat, salivation, abdominal pain with severe colic, vomiting, diarrhea, fatigue, or sleep disturbances. Other signs and symptoms of exposure include metal fume fever (an influenza-like illness), disorientation, tingling sensation, convulsions, or paralysis. The fatal dose of lead is approximately 0.5 g.

Medical Conditions Generally Aggravated by Exposure: Blood system disorders, gastrointestinal disorders, nervous system disorders, and respiratory disorders.

Listed as a Carcinogen/Potential Carcinogen:

	Yes	No
In the National Toxicology Program (NTP) Report on Carcinogens		X
In the International Agency for Research on Cancer (IARC) Monographs	X	
By the Occupational Safety and Health Administration (OSHA)		X

NOTE: The International Agency for Research on Cancer (IARC) classifies the carcinogen status of lead as Human Inadequate Evidence, Animal Sufficient Evidence, Group 2B.

EMERGENCY AND FIRST AID PROCEDURES:

Skin Contact: Remove contaminated shoes and clothing. Rinse affected area with large amounts of water followed by washing the area with soap and water. Obtain medical assistance if necessary.

Eye Contact: Immediately flush eyes, including under the eyelids, with copious amounts of water for at least 15 minutes. Obtain medical assistance.

Inhalation: If inhaled, remove the victim to fresh air. If breathing is difficult, give oxygen; if victim is not breathing, give artificial resuscitation. Obtain medical assistance.

Ingestion: If ingestion occurs, wash out mouth with water. **DO NOT** induce vomiting. Never make an unconscious person vomit or drink fluids. If spontaneous vomiting occurs, lower head to knee level to help prevent aspiration. If person is unconscious, turn head to side. Obtain medical assistance immediately.

TARGET ORGAN(S) OF ATTACK: central nervous system (CNS) and kidneys

SECTION VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material Is Released or Spilled: Notify safety personnel of major spills. Evacuate nonessential personnel. Cleanup personnel should be protected against dust inhalation and eye contact. Sweep up material and place in a receptacle appropriate for disposal. Avoid generating dust.

Waste Disposal: Follow all federal, state, and local laws governing disposal.

Handling and Storage: Provide ventilation systems to maintain airborne particle concentrations below the TLV. Local exhaust ventilation is preferred since it prevents contaminant dispersing into the work area by controlling it at its source. Persons handling this material should avoid direct contact with this material. Eyewash stations and safety showers should be readily available to areas of handling and use.

Store in a cool, dry, well-ventilated area.

SECTION VIII. SOURCE DATA/OTHER COMMENTS

Sources: MDL Information Systems, Inc., MSDS *Lead*, 18 September 2001.
The Merck Index, 11th Ed., 1989.
The Sigma-Aldrich Library of Chemical Safety Data, 2nd Ed., **Vol. II**, 1988.